

Application No. 10/075,404
Response to the Office Action Mailed February 3, 2005
Amendment dated August 2, 2005

REMARKS/ARGUMENTS

Continued examination and favorable consideration of the present application are respectfully requested.

Previously pending independent claims 23-24 remain in this application. Claim 22 has been cancelled by this amendment. New dependent claims 25-40 have been added. The new claims are supported in the specification at least at page 6, lines 13-15, page 9, lines 24-29, page 12, lines 20-26, the original claims as filed, and by previously pending claim 22.

Double Patenting

Claim 22 is rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claim 1 of U.S. Patent No. 6,372,106 B1 to Johnson et al. in view of Knox et al. ("Volume Expansion and Loss of Sample due to Initial Self-heating in Capillary Electroseparation (CES) Systems," *Chromatographia*, Vol. 38, No. 5/6, March 1994) and McCormick ("Capillary Zone Electrophoretic Separation of Peptides and Proteins Using Low pH Buffers in Modified Silica Capillaries," *Anal. Chem.*, 1988, 60, 2322-2328). Applicants respectfully traverse this rejection and request that, if not withdrawn, at a minimum the rejection be held in abeyance until the claims in the application are otherwise in condition for allowance.

Claim 23 is rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claim 1 of U.S. Patent No. 6,372,106 B1 in view of Knox et al. ("Volume Expansion and Loss of Sample due to Initial Self-heating in Capillary Electroseparation (CES) Systems," *Chromatographia*, Vol. 38, No. 5/6, March 1994) and

Application No. 10/075,404
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McCormick ("Capillary Zone Electrophoretic Separation of Peptides and Proteins Using Low pH Buffers in Modified Silica Capillaries," *Anal. Chem.*, 1988, 60, 2322-2328). Applicants respectfully traverse this rejection and request that, if not withdrawn, at a minimum the rejection be held in abeyance until the claims in the application are otherwise in condition for allowance.

Rejection of Claims

The Examiner rejected claim 22 under 35 U.S.C. § 102(b) as allegedly being anticipated by McCormick ("Capillary Zone Electrophoretic Separation of Peptides and Proteins Using Low pH Buffers in Modified Silica Capillaries," *Anal. Chem.*, 1988, 60, 2322-2328). Applicants respectfully traverse this rejection.

Solely, in an effort to expedite prosecution and without acquiescing the propriety of the rejection, the Applicants have canceled claim 22. Therefore, this rejection is now moot and should be withdrawn.

The Examiner also rejected claims 23 and 24 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Liu et al. ("Separation of Double- and Single-stranded DNA Restriction Fragments: Capillary Electrophoresis with Polymer Solutions under Alkaline Conditions," *Anal. Chem.*, 1999, 71, 1668-1673) (hereinafter "Liu") in view of Knox et al. ("Volume Expansion and Loss of Sample due to Initial Self-heating in Capillary Electro-separation (CES) Systems," *Chromatographia*, Vol. 38, No. 5/6, March 1994) (hereinafter "Knox"), and McCormick ("Capillary Zone Electrophoretic Separation of Peptides and Proteins Using Low pH Buffers in Modified Silica Capillaries," *Anal. Chem.*, 1988, 60, 2322-2328) (hereinafter "McCormick"). Applicants respectfully traverse this rejection.

Application No. 10/075,404
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Amendment dated August 2, 2005

In order for a combination of art to render a claim obvious under 35 U.S.C. § 103, *both* the motivation to combine the cited art and a reasonable expectation of obtaining the claimed invention based on the combination of the art, must be present. Neither of these conditions are met or have been shown by the Examiner.

At page 6 of the Office Action, the Examiner states that "Liu discloses an electrophoresis method in which nucleic acid is separated by differential migration through a buffered solution containing a non-crosslinked polymer under the influence of a run field." Immediately following this, however, the Examiner notes the shortcoming in the art and acknowledges that "Liu does *not* mention the ramp rate used." Thus, Liu clearly lacks at least one aspect of the claimed invention. Neither Knox nor McCormick provides any motivation to be combined with Liu to remedy this deficit.

Liu also lacks *any* motivation, whatsoever, to make the combination of the cited documents. At page 1668, first full paragraph, Liu refers to another publication that specifically notes "the other fragments of 23 kbp were *successfully separated* using this ultra-diluted HEC solution under *constant field strength*." Liu directly points to the use of *constant field strength*, not a run field having a ramp rate and provides no suggestion to switch from a *constant field strength* to a ramp rate. If anything, Liu points to how successful the use of a constant field strength can be for a desired separation. Clearly, there is no motivation whatsoever to combine Liu with the other cited art, even if, as the Examiner alleges, "as a general principal it was known in the art at the time of the invention that a high ramp rate would adversely affect the separation resolution of a capillary electrophoresis system."

Application No. 10/075,404
Response to the Office Action Mailed February 3, 2005
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At page 6 of the Office Action, the Examiner next refers to Knox and states that Knox "explains in detail why the ramp rate is important to separation resolution. It was also known at the time of the invention how to evaluate the effect of different ramp rates on separation resolution." Neither of these aspects of Knox provides any motivation to combine Knox with Liu or to actually use a ramp rate in the method of Liu. Furthermore, Knox provides nothing of relevance to the recited ramp rate values recited in claims 24 and 25 or the newly added dependent claims. Merely, because one of skill in the art might know, as the Examiner alleges, how to "evaluate" the effect of different ramp rates on separation resolution, nothing in Knox points to actually using the ramp rate as claimed in the method of claims 24 or 25.

Next, the Examiner points to McCormick in an attempt to remedy the deficits of the combination of Liu and Knox. The Examiner readily acknowledges that McCormick "does not mention using a non-crosslinked polymer or a nucleic acid." The Examiner, however, states that "McCormick does disclose coating the inside of a capillary with polymer and separating proteins." At a minimum, this cite is completely irrelevant to claim 24 since claim 24 recites "nucleic acid," not a protein. McCormick clearly fails to remedy the deficit resulting from the combination of Knox and Liu and there is no reasonable expectation of obtaining the invention of claim 24 based on the combination of the cited art.

Furthermore, merely because McCormick may refer to a ramp rate of 0.7 V/cm-s, this still fails to provide any motivation to combine McCormick with the other cited art. Why would Liu or Knox want to use such a ramp rate, especially if there is no suggestion to do so?

Application No. 10/075,404
Response to the Office Action Mailed February 3, 2005
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In the Office Action at page 7, the Examiner refers to "Virtanen." Applicants assume this was an error and that the Examiner intended to refer to McCormick. If Applicants are incorrect in this assumption, they request clarification from the Examiner in this matter.

Based on all the above, neither the motivation to combine the cited art nor a reasonable expectation of successfully obtaining the claimed inventions would exist based on the combination of the cited art. Therefore, this rejection is overcome, should be withdrawn, and the pending claims allowed.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request favorable reconsideration of the present application and a timely allowance of the pending claims.

Should the Examiner deem that any further action by Applicants or Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

If there are any fee(s) due in connection with the filing of this response, please charge the fee(s) to Deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,


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